UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,091	03/31/2004	Takao Yamaguchi	P25125	5665

7055 7590 10/07/2008

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER	
BITAR, NANCY	

ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
10/07/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary	Application No.	Applicant(s)	
	10/813,091	YAMAGUCHI ET AL.	
	Examiner	Art Unit	
	NANCY BITAR	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/29/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.
>
> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).
>
> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

1. Claims 20-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 20-25 defines "a program" embodying functional descriptive material. Claims 26 define "a storage medium" embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the

function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed "a program or a storage medium" can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-26 are rejected under 35 U.S.C. 102(a) as being anticipated by Collberg et al (Watermarking, Tamper-proofing, and obfuscation-tools for software protection, IEEE 2002)

As to claim 1, Sato teaches the program software watermarking processing apparatus comprising:

an original program input section that inputs an original program with a software watermarking (in figure 3A, Alice watermarks her program P. At 1 the watermark W is incorporated into the original program using a secret key k, page 732, section 1.2)

a differential program input section that inputs a differential program with a software watermarking to update the original program; a software watermarking extracting section that extracts the software watermarking from the differential program with the software

watermarking (at 2, bob steal a copy P' and Charles extracts its watermark using k to show that P' is owned by Alice, section 1.2) ; a program update section that generates an updated program by updating the original program using the differential program with the watermark; and a watermark inserting section that inserts the software watermarking extracted from the differential program into the updated program (in figure 3c, Alice protects her program from reverse engineering by obfuscating it. The obfuscating transformation make the program harder for bob to understand, while maintaining its semantics, page 737, section 1.2, see also figure 2).

As to claim 2 and 3, Collberg et al teaches the program software watermarking processing apparatus comprising:

an original program input section that inputs an original program with a software watermarking (in figure 3A, Alice watermarks her program P. At 1 the watermark W is incorporated into the original program using a secret key k, page 732, section 1.2);

a differential program input section that inputs a differential program to update the original program (at 2, bob steal a copy P' and Charles extracts its watermark using k to show that P' is owned by Alice, section 1.2); a watermark input section that inputs a new software watermarking (page 737, column 1,lines 29-32); a program update section that generates an updated program by updating the original program using the differential program (in figure 3c, Alice protects her program from reverse engineering by obfuscating it. The obfuscating transformation make the program harder for bob to understand, while maintaining its semantics, page 737, section 1.2); and a watermark inserting section that inserts the new software watermarking into the updated program (section 3.4).Moreover, Collberg teaches a software watermarking extracting section that extracts the software watermarking from the original program (page 743, section

3.4; the program topology is the watermark/fingerprint; as such, the water/fingerprint is not determined by a decision statement, but by topology) .

As to claims 4-5, Collberg teaches the program software watermarking processing apparatus comprising: an original program input section that inputs an original program with a software watermarking (figure 3a) ; a differential program input section that inputs a user differential program to generate an updated program with a software watermarking from the original program with the software watermarking; and a program update section that generates the updated program with the software watermarking from the original program with the software watermarking using the user differential program(figure 3b, 3c, page 741, 742, section 3.2).Coldberg teaches the program software watermarking inserting apparatus according to claim 5, where the software watermarking to insert into the differential program is different from the software watermarking to add to the original program (page 737, column 1, lines 29-32).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 7-26 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Collberg in views of Fransdonk et al (US 7,227,427).

While Coldberg meets a number of the limitations of the claimed invention, as pointed out more fully above, Coldberg fails to specifically teach the a program management section that generates a differential program between the original program and the original program with the

watermark to manage and a program managing section that generates a differential program between the updated program and the updated program with the watermark to manage.

Specifically, Fransdonk et al. teaches the processing of content as it is communicated from a content provider 16, via a content distributor 20, to a content destination 22. At the content provider 16, clear content 24 is encrypted utilizing, for example, a symmetric product key (or content key) to generate encrypted content 26. It will thus be appreciated that the content provider 16 will be particularly concerned about security pertaining to the product key as access to this key potentially allows for regeneration of the clear content 24. The encrypted content 26 (or cipher text) is then communicated from the content provider 16, via the network 18, to the content distributor 20. A conditional access agent 28, which represents the interests of the content provider 16 at the remote content distributor 20, may perform a number of operations in a secure environment with respect to the encrypted content 26. In one embodiment, the conditional access agent 28 decrypts the encrypted content 26 to regenerate the clear content 24 within a secure environment, and watermarks the clear content for distribution to a specific content destination 22. Watermarked content 30 may then be distributed from the content distributor 20 via the network 18, to a conditional access client 32 at the content destination 22. In an alternative embodiment, the conditional access agent 28 at the content distributor 20 may re-encrypted the content with a public key of a copy-protected device at the content destination 22. In any event, the clear and watermarked content 30 is then available for viewing and consumption at the content destination 22. It would have been obvious to one of ordinary skill in the art to use the program managing section in Collberg in order to protect the content encryption

keys from unauthorized operator. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jingge Wu/
Supervisory Patent Examiner, Art Unit 2624

Nancy Bitar 9/17/2008